MIAMI-SOUTH FLORIDA
National Weather Service
Forecast Office
http://www.weather.gov/miami

July 2013 Weather Summary

Wet July Leads to Record Rainfall Totals

August 2, 2013: July continued the wetter-than-normal pattern which has marked the 2013 rainy season across south Florida. A rather persistent southeast to south wind flow from the tropics brought high levels of moisture across the region (Figure 1), helping to cause episodes of very heavy rain and flooding across much of the region. These episodes led to record rainfall totals for the month of July to be established at Miami Beach and Fort Lauderdale, with several other locations from Miami-Dade County all the way to Hendry and Glades counties ending up among the top 10 wettest July on record (see July rainfall table below).

With few exceptions, above-normal rainfall was observed over the southern Florida peninsula, with most areas receiving 10 inches or more of rain (Figure 2). More data is available from the South Florida Water Management District (SFWMD) here.

The most significant July rainfall episodes were:

- **July 9-13**: A strong mid/upper level low pressure area over the Ohio Valley and another upper level low near south Florida caused torrential downpours over parts of southeast Florida. Unofficial rainfall amounts in excess of 13 inches were reported in southern Broward County, with 4 to 8 inches of rain common across the rest of Broward County as well as portions of Palm Beach, Collier and Miami-Dade counties.

- **July 16-18**: Another strong mid/upper level low, this one over the eastern Gulf of Mexico, pumped deep tropical moisture over the region and led to significant flooding of streets and neighborhoods in Miami Beach and Oakland Park. Rainfall totals of 4-9 inches fell across much of northeast Miami-Dade and eastern Broward counties,

including daily totals of 6.78 in Miami Beach on the 18th, 5.88 in Hollywood on the 17th and an estimated 5 inches in Oakland Park on the 17th.

- **July 27-29**: An upper level trough over the Gulf of Mexico combined with a surface-based trough over the south Florida peninsula caused pockets of very heavy rain over the area. Over 5 inches of rain fell on the morning of the 27th in North Naples, with small areas of 2-4 inches across the rest of south Florida during the three-day period.

Here are some July rainfall totals, departure from normal and rank for select locations:

Location (Beginning of Period of Record)	**July 2013 Rainfall (inches)**	**July Departure from Normal**	**July Rank (Top 10)**
Big Cypress - Hendry County	**8.41**	**-0.26**	
Brighton Seminole Campground	**12.34**	**+5.48**	
Bills Baggs Cape Florida State Park	**10.69**	**+5.43**	
Fort Lauderdale/Hollywood Int'l Airport (1913)	**15.49**	**+9.51**	Wettest
Fort Lauderdale Beach	**15.35**	**+9.23**	
Hialeah (1940)	**13.48**	**+6.16**	2nd wettest
Hollywood (1963)	**15.37**	**+9.39**	
Homestead General Airport (1990)	**13.09**	**+6.27**	Wettest
Immokalee (1970)	**7.53**	**+0.05**	
Juno Beach	**12.28**	**+6.52**	
LaBelle (1929)	**12.51**	**+4.85**	9th wettest
Marco Island	**10.78**	**+3.83**	
Miami Beach (1927)	**18.47**	**+14.12**	Wettest
Miami International Airport (1911)	**12.70**	**+6.20**	6th wettest
Moore Haven (1918)	**12.43**	**+5.58**	8th wettest
Muse	**10.59**		
Naples East/Golden Gate	**11.25**	**+2.07**	
Naples Municipal Airport (1942)	**9.06**	**+1.79**	
North Miami Beach	**12.57**	**+4.83**	
NWS Miami – Sweetwater	**11.75**		
Oasis Ranger Station (1978)	**8.30**	**+0.36**	
Ortona	**14.67**	**+5.81**	

Palm Beach Gardens	**11.31**	**+5.22**	
Palm Beach Int'l Airport (1888)	**5.84**	**+0.08**	
The Redland - Miami-Dade County (1942)	**13.65**	**+6.85**	3rd wettest

Other Significant July Weather

With the above normal rainfall, it is expected that thunderstorms would play a primary role in July's weather across south Florida. Although no severe-level wind and hail reports were received, lightning strikes resulted in a total of 4 injuries.

Two reported tornadoes touched down over south Florida; one from a waterspout which moved onshore Pompano Beach on July 19th and resulted in 3 minor injuries during a lifeguard competition, and a weak tornado briefly touching down in the Marina Mile section of Dania Beach on July 23rd which resulted in mostly minor damage and no injuries.

Rip currents also were present at certain times in the month, with the period from July 4 to July 7 being the most significant. During this time, one person drowned in Lauderdale-by-the-Sea and at least 36 other were rescued at south Florida beaches.

2013 Rainy Season So Far

Now that we've reached the approximate midway point of the rainy season, let's look back at some rainfall totals for the period from May 15 to July 31:

Location (Beginning of Period of Record)	**Rainfall May 15- July 31 (inches)**
Big Cypress - Hendry County	**24.53**
Brighton Seminole Campground	**19.46**
Bills Baggs Cape Florida State Park	**21.74**
Fort Lauderdale/Hollywood Int'l Airport (1913)	**39.44**
Fort Lauderdale Beach	**32.66**
Hialeah (1940)	**25.99**
Hollywood (1963)	**36.84**

Homestead General Airport (1990)	**24.24**
Immokalee (1970)	**20.60**
Juno Beach	**35.79**
LaBelle (1929)	**24.38**
Marco Island	**26.96**
Miami Beach (1927)	**28.33**
Miami International Airport (1911)	**27.35**
Moore Haven (1918)	**21.75**
Muse	**19.06**
Naples East/Golden Gate	**29.37**
Naples Municipal Airport (1942)	**19.89**
North Miami Beach	**26.86**
NWS Miami – Sweetwater	**32.60**
Oasis Ranger Station (1978)	**19.40**
Ortona	**30.83**
Palm Beach Gardens	**25.48**
Palm Beach Int'l Airport (1888)	**28.97**
The Redland - Miami-Dade County (1942)	**26.08**

Going back to the beginning of May, rainfall has been above to well above normal across almost the entire south Florida region, with only isolated spots in Miami-Dade and Mainland Monroe counties falling just short of the normal for this time period. Data from the South Florida Water Management District (SFWMD) shows that this is the wettest start to the rainy season since 1968 (which includes parts of central Florida in addition to the southern Florida peninsula). Please visit the SFWMD web site for their full July report, including impacts on local water levels (NOTE: check back at a later time if link is unavailable).

Temperatures

The above-normal rainfall and associated increase in cloud cover contributed to average July temperatures ending up 1 to 3 degrees below normal over most of south Florida.

- **Miami International Airport** had an average July temperature of 82.4 degrees Fahrenheit. This is 1.7 degrees below the 30-year normal for July. Miami observed 9

days of temperatures at or above 90 degrees, which is less than the normal July total of 14 days.

- **Palm Beach International Airport** had an average July temperature of 83.3 degrees Fahrenheit. This is 0.6 degrees above the 30-year normal for July. West Palm Beach observed 15 days of temperatures at or above 90 degrees, which is right at the normal July total.

- **Fort Lauderdale/Hollywood International Airport** had an average July temperature of 81.7 degrees Fahrenheit. This is 2.6 degrees below the 30-year normal for July. Fort Lauderdale observed only 3 days of temperatures at or above 90 degrees, well below the normal July total of 14 days.

- **Naples Municipal Airport** had an average July temperature of 81.9 degrees Fahrenheit. This is 1.2 degrees below the 30-year normal for July. Naples observed only 10 days of temperatures at or above 90 degrees, well below the normal July total of 22 days.

Outlook for August-October

Latest outlooks by the NOAA Climate Prediction Center (CPC) are that the second half of the rainy season may be wetter-than-normal across south Florida (Figure 3), continuing the trend observed so far this rainy season. The CPC outlook also calls for equal chances of above, below or near normal temperatures for the same time period.

The August to October period is historically the most active part of the Atlantic hurricane season. Almost all south Florida hurricanes and the vast majority of tropical storms have struck our area during these three months. Therefore, it is important that we keep a close eye on the tropics over the next three months and make sure that our personal hurricane plans are in place for this season.

Rip currents and lightning continue to be threats, particularly in August and September. Please make sure to follow the appropriate safety advice. For rip currents, we strongly recommend to swim at guarded beaches and heed the advice of Ocean Rescue personnel. For lightning, a simple but effective rule of thumb is: When Lightning Roars, Go Indoors! For more information, visit the National Weather Service Rip Current Awareness page and the NWS Lightning Awareness Page.

For the latest south Florida weather information, including the latest watches, advisories and warnings, please visit the National Weather Service Miami Forecast Office's web site at weather.gov/southflorida.

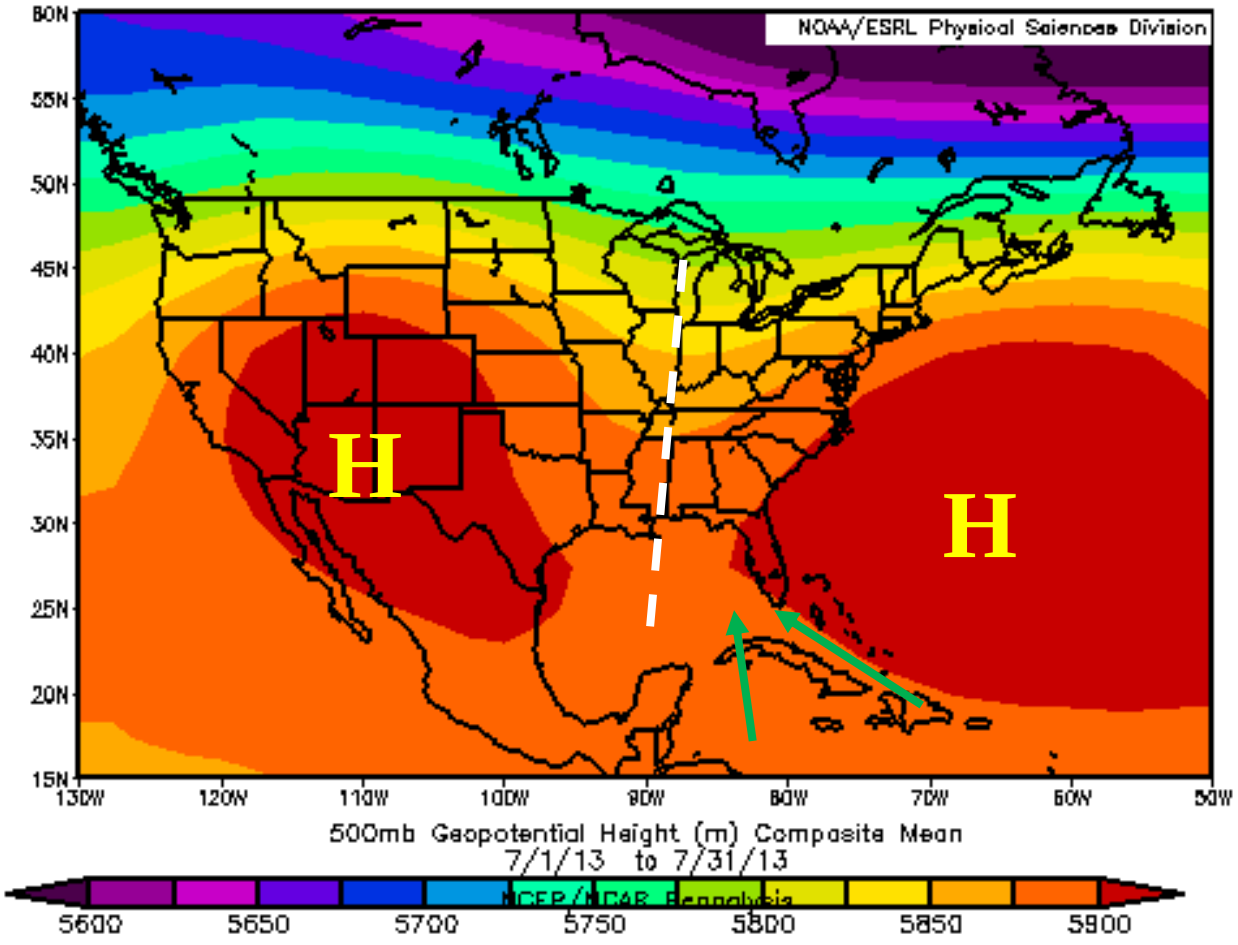

***Figure 1**: Mean 500 mb (mid-tropospheric) pattern for July 2013. High pressure over the western Atlantic combined with a trough over the Great Lakes, Mississippi Valley and Gulf of Mexico led to a southeast to south flow of air over Florida.*

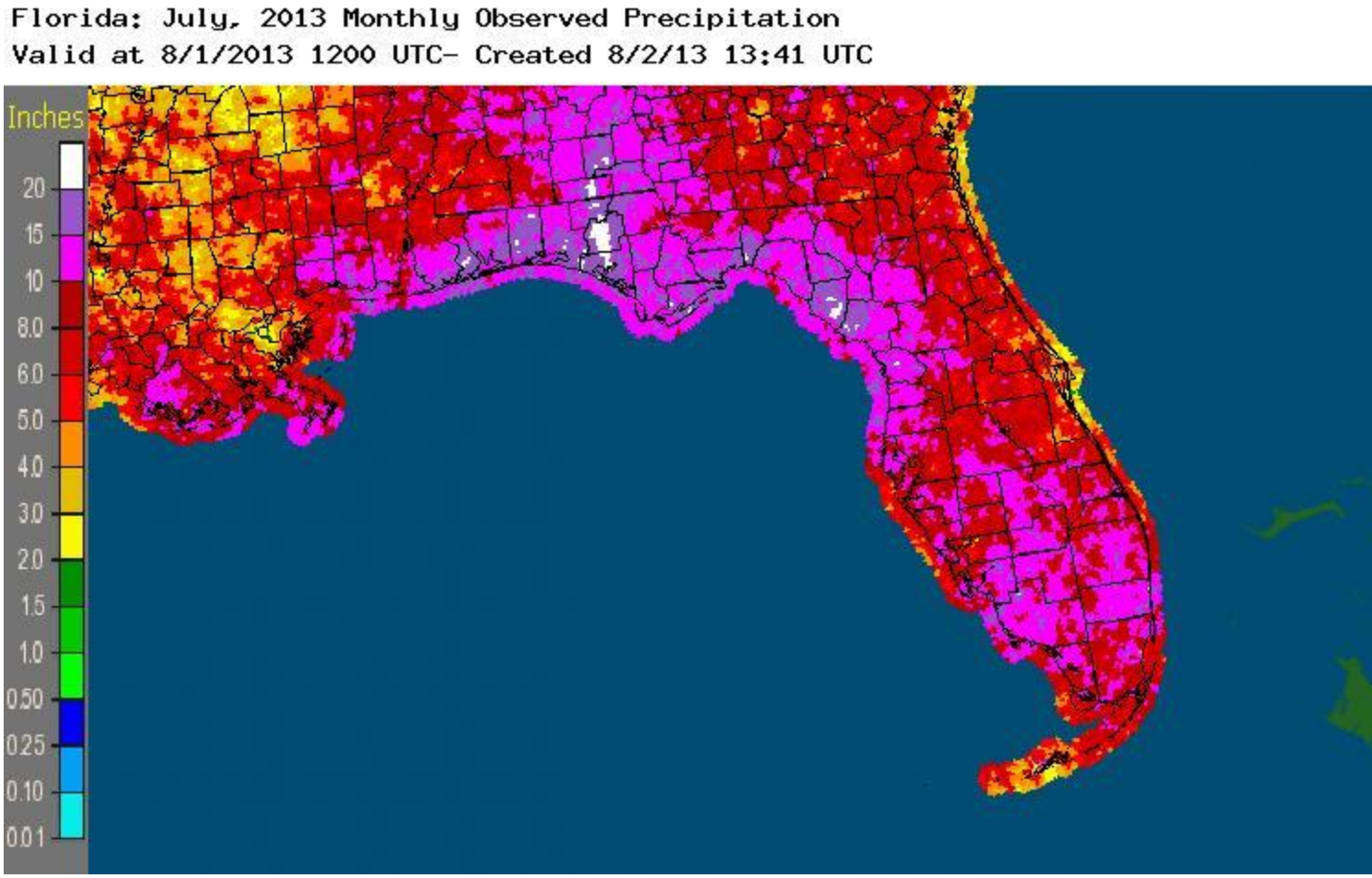

***Figure 2**: July precipitation. Magenta colors indicate values over 10 inches, with isolated spots in excess of 15 inches.*

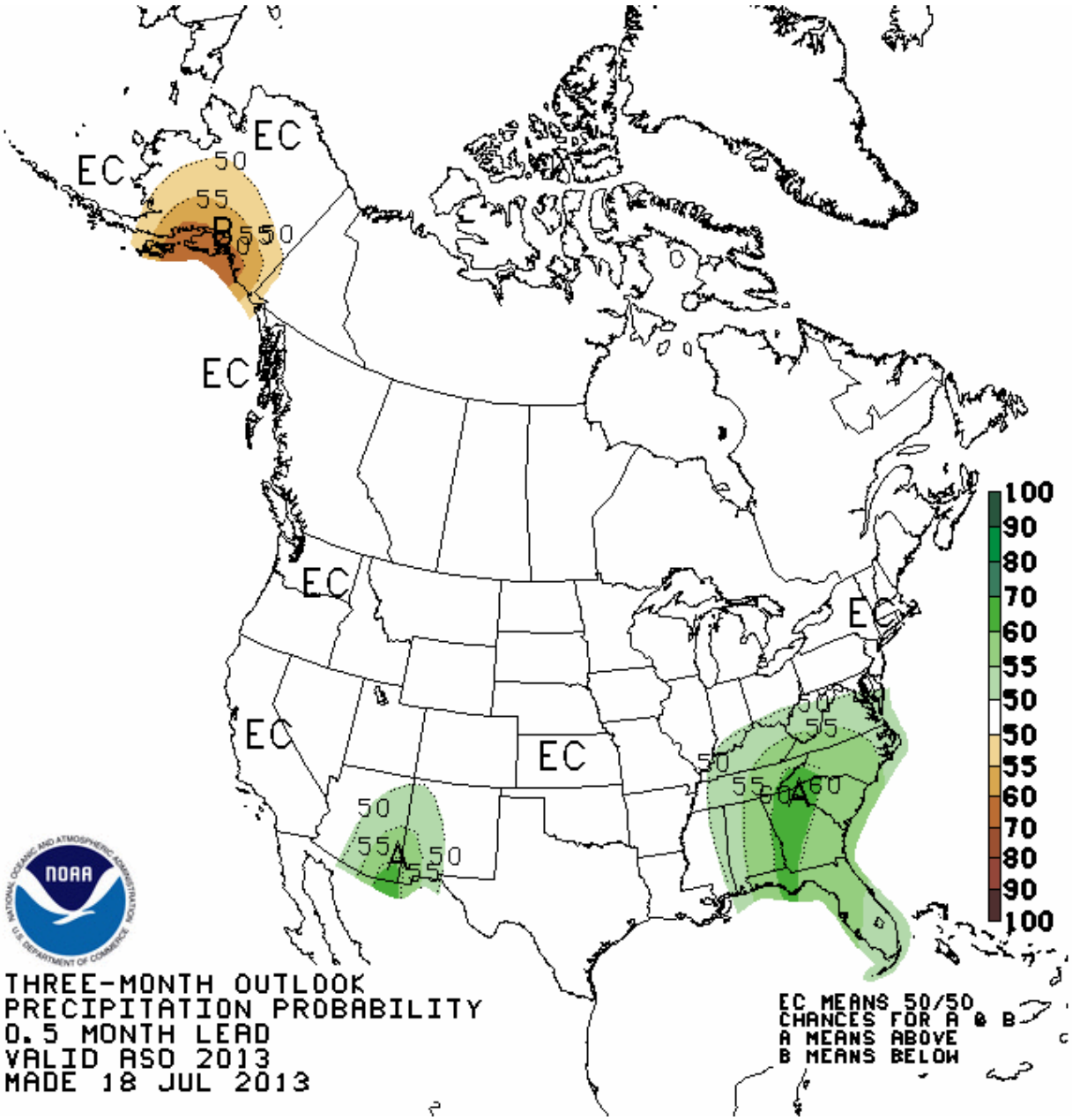

***Figure 3**: August-October precipitation probability from NOAA's Climate Prediction Center (CPC).*